

WHAT IS CLAIMED IS:

1. A suspension design for a standard capacity railway truck, the suspension design comprising:

a first sideframe and a second sideframe, wherein the first sideframe and the second sideframe are laterally spaced with respect to each other;

an opening in each of the first sideframe and the second sideframe;

a bolster having two end sections and extending laterally between the first sideframe and the second sideframe, wherein one of the two end sections extends through the opening in the first sideframe and another of the two end sections extends through the opening in the second sideframe; and

a first suspension system of the first sideframe and a second suspension system of the second sideframe, wherein the first suspension system and the second suspension system provide all the necessary suspension required for the standard capacity railway truck and further wherein the first suspension system and the second suspension system each comprise:

a spring group on a bottom surface of the opening, wherein the spring group supports the bolster, the spring group comprises a plurality of springs, and the spring group has a reserve capacity less than 1.50.

2. The suspension design for a railway truck of claim 1, wherein the spring group has a reserve capacity of 1.49 or less.

3. The suspension design for a railway truck of claim 1, wherein the spring group has a reserve capacity of 1.35 to 1.48.

4. The suspension design for a railway truck of claim 1, wherein the spring group has a reserve capacity of 1.40 to 1.47.

5. The suspension design for a railway truck of claim 1, further comprising:
a pair of opposing pockets in each of the two end sections of the bolster;
and

a pair of friction shoes each located in one of the opposing pockets of the bolster and each adjacent to opposing side walls of the opening.

6. The suspension design for a railway truck of claim 1, wherein the railway truck has a weight capacity of 286,000 pounds.

7. The suspension design for a railway truck of claim 6, wherein the maximum vertical acceleration of the railway truck at about 55 miles per hour is about 1.1g.

8. The suspension design for a railway truck of claim 1, wherein the plurality of springs include load springs and control springs.

9. The suspension design for a railway truck of claim 1, wherein the plurality of springs include a plurality of spring sets.

10. The suspension design for a railway truck of claim 9, wherein each of the spring sets include at least one of an inner-inner spring, an inner spring, and an outer spring.

11. The suspension design for a railway truck of claim 9, wherein each of the spring sets includes springs or an hydraulic snub, wherein when the hydraulic snub is included in each of the spring sets, the reserve capacity is less than 1.45.

12. The suspension design for a railway truck of claim 1, wherein the opening is defined by a top surface, a bottom surface, and two laterally spaced column surfaces.

13. The suspension design for a railway truck of claim 12, further comprising: a plurality of wear plates wherein each of the column surfaces has a wear plate affixed thereto.

14. A method for tuning a spring suspension of a railway truck supported by two laterally spaced sideframes and a bolster extending laterally between and coupled to the sideframes, wherein the sideframes each have an opening therein, the method comprising the steps of:

determining a load of the railway truck;

providing a suspension system for the railway truck comprising:

a spring group on a bottom surface of the opening of the each of the sideframes, wherein the spring group comprises a plurality of springs and a configuration of the spring group is such that a reserve capacity of the spring group is less than 1.50 based on the determined load of the railway truck.

15. The method of claim 14, further comprising the step of:
modifying the configuration of the spring group to reduce the reserve capacity to 1.49 or less.

16. The method of claim 14, further comprising the step of:
modifying the configuration of the spring group to reduce the reserve capacity to a range of 1.35 to 1.48.

17. The method of claim 14, further comprising the step of:
modifying the configuration of the spring group to reduce the reserve capacity to a range of 1.40 to 1.47.

18. The method of claim 14, further comprising the step of:
modifying the configuration of the spring group by removing at least one of
the plurality of springs.
19. The method of claim 14, further comprising the step of:
modifying the configuration of the spring group by replacing at least one of the
plurality of the springs by a spring of a different type or size.
20. The method of claim 14, further comprising the step of:
modifying the configuration of the spring group by changing the arrangement of at
least one of the plurality of springs.
21. A suspension design for a railway truck comprising:
a first sideframe and a second sideframe, wherein the first sideframe and the
second sideframe are laterally spaced with respect to each other;
an opening in each of the first sideframe and the second sideframe;
a bolster having two end sections and extending laterally between the first
sideframe and the second sideframe, wherein one of the two end sections extends through the
opening in the first sideframe and another of the two end sections extends through the
opening in the second sideframe; and
a first suspension system of the first sideframe and a second suspension
system of the second sideframe, wherein the first suspension system and the second
suspension system each comprise:
a spring group on a bottom surface of the opening, wherein the spring
group supports the bolster, the spring group comprises a plurality of springs, and the
spring group wherein the spring group is a tuned spring group having a reserve
capacity less than 1.50.